

WHAT IS CLAIMED IS:

1. A semiconductor storage device comprising:
a memory cell array formed by using nonvolatile
memory elements;

5 a voltage supply circuit for generating a voltage
supplied to the memory cell array;

a voltage polarity inversion circuit for
inverting a polarity of the voltage generated by the
voltage supply circuit; and

10 a first voltage value detection circuit for
detecting a value of the voltage supplied from the voltage
polarity inversion circuit to the memory cell array,
wherein

each of the nonvolatile memory elements includes:

15 a gate electrode formed on a semiconductor layer
via a gate insulation film;

a channel region placed under the gate electrode
via the gate insulation film;

20 diffusion regions placed on both sides of the
channel region and having a conductive type opposite to
that of the channel region; and

a memory-function body formed on both sides of
the gate electrode and having a function of holding
electric charges or a polarization.

25 2. The semiconductor storage device as claimed in

claim 1, further comprising:

a second voltage value detection circuit for detecting a value of the voltage supplied from the voltage supply circuit to the memory cell array.

5 3. The semiconductor storage device as claimed in claim 1, further comprising:

a select-and-connect circuit for selecting proper nonvolatile memory elements from among the nonvolatile memory elements constituting the memory cell array and
10 connecting the voltage supply circuit and the voltage polarity inversion circuit to the selected nonvolatile memory elements, wherein

the select-and-connect circuit includes field-effect transistors.

15 4. The semiconductor storage device as claimed in claim 3, wherein

at least one of the field-effect transistors included in the select-and-connect circuit is a low-threshold field-effect transistor having a threshold
20 voltage lower than that of field-effect transistors included in the voltage polarity inversion circuit.

5. The semiconductor storage device as claimed in claim 1, wherein

at least part of the memory-function body is
25 overlapped with part of the diffusion region.

6. The semiconductor storage device as claimed in claim 1, wherein the memory-function body has:

a film having a surface substantially parallel to a surface of the gate insulation film and having a function of holding electric charges; and

an insulation film for isolating the channel region or the semiconductor layer, wherein

thickness of the insulation film is thinner than thickness of the gate insulation film and 0.8 nm or more.

10 7. Portable electronic equipment having the semiconductor storage device claimed in claim 1.